REMARKS

Claims 32-40 and 42-59 are now pending in the application. Claims 1-31 have been cancelled. Applicant submits that the claim amendments are consonant with the amendments and arguments previously presented in the prosecution of the present application, hence the amendments to the claims do not add new matter or require further consideration. Further, Applicant believes that these amendments will place the application in condition for allowance and/or in better form for appeal.

On February 10, 2006, Applicant's representative had the opportunity to conduct a brief telephonic interview with the Examiner regarding the pending claims in the application. Applicant thanks the Examiner for the courtesies extended during this interview. During the course of the interview, the Examiner indicated that focusing on the method claims may be a viable approach to obtaining allowable subject matter. In light of these discussions, Applicant is hereby canceling Claims 1-25 and 27-31 directed to casting materials and molds, without prejudice. Applicant is canceling these claims to simplify and further prosecution, however, the cancellation of these claims does not in any way constitute a statement as to the patentability of the cancelled claims. Applicant fully reserves the right to file any continuation or divisional applications pursuing the subject matter of the cancelled claims. In view of the remarks and the amendments contained herein, Applicant respectfully requests that the Examiner reconsider and withdraw the rejections.

REJECTION UNDER 35 U.S.C. § 103

Claims 1-25, 27-32, 39, and 42-45 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Johnson et al. (U.S. Pat. No. 5,126,089, hereinafter "Johnson") in view of Madono (U.S. Pat. No. 4,584,328, hereinafter "Madono"). This rejection is respectfully traversed. As Applicant noted above, Claims 1-25 and 27-31 have been cancelled. Claims 32, 39 and 42-45 remain pending.

Claims 33-38, 40 and 46-59 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Johnson in view of Madono and further in view of Hoffman Jr. et al. (U.S. Pat. No. 6,264,823 hereinafter "Hoffman"). This rejection is respectfully traversed.

As described above, Claims 1-31 directed to compositions of foundry materials and molds have been cancelled, and the remaining claims focus on the method claims. Claims 32-40 and 42 – 59 are directed to methods of forming metal parts and removing residual casting material from a metal part.

Independent Claim 32 recites a method of forming a metal part. A residual mold material remains on a solid formed by pouring and cooling molten metal in a mold. Claim 32 recites removing the residual mold material via electrolytic processing by applying a voltage and contacting the material with an electrolyte. A disintegration additive in the residual mold material promotes disintegration during electrolytic processing.

Similarly, independent Claim 46 recites a method of removing residual casting material from a metal part. The metal part is attached to a power source having electrodes. The metal part is contacted with electrolyte. A current is generated through the electrolyte. The residual casting material is made from a mixture comprising a

disintegration additive that promotes disintegration of the residual casting material during electrolytic processing in the presence of an applied voltage and electrolyte.

Applicant respectfully maintains that a *prima facie* case of obviousness has not been established as required, because (a) each and every element of the claimed invention is not cited in the cited prior art; (b) the references lack any suggestion and/or motivation to arrive at the presently claimed invention; and (c) that one of skill in the art would have no reasonable expectation of success regarding the required modifications. (See, *e.g.*, *In re Vaeck,* 20 USPQ.2d 1438 (Fed. Cir. 1991)). Applicant respectfully submits that none of the Johnson, Madano, and/or Hoffman references provides the necessary disclosure, suggestion, or motivation to render the invention in Claims 32-40 and 42 – 59 obvious.

In particular, none of the cited references discloses or suggests electrolytic processing to remove residual casting materials. The Johnson reference has no disclosure or suggestion of removing residual casting material from a cast part via an electrolytic apparatus. Further, the Johnson reference has no applicability to electrolytic processing. The Johnson reference merely recites known methods of removing cores from cast components by breaking down binder with steam and then using mechanical agitation (shake-out) and/or high pressure jets of water to remove core materials. Col. 4 lines 53-56.

The Johnson reference is silent as to including additives for casting materials. Thus, the Johnson reference not only fails to disclose electrolytic processing, but also fails to disclose a casting material containing a disintegration additive comprising an

ionic compound that promotes disintegration of the casting material in the presence of an electrolyte. None of the other cited references account for these deficiencies.

The Madono reference has no disclosure or suggestion of any electrolytic processing apparatus whatsoever. Further, Madono has no disclosure or suggestion of using a disintegration additive that promotes disintegration of the casting material in the presence of an electrolyte to remove residual casting materials from metal parts.

Similarly, the Hoffman reference has no disclosure of removing residual casting materials from cast parts. Nowhere in the Hoffman reference is it suggested that electrolytic processing can remove residual casting material from a cast part. There is a vast physical distinction between a thin film coating suggested as being suitable for removal by Hoffman, and a ceramic-like casting material. A residual casting material has interfaced with and fused to a molten metal during processing, hence it remains attached to the metal after casting. Hoffman does not suggest that such a process would be robust enough to remove residual casting material. Rather, Hoffman and only discloses removing rust, scale, smut, petroleum derived contaminants, oils, greases, flux, carbonization, paint, dirt, and the like. Col. 1, lines 29-34, for example. In fact, to those of ordinary skill in the art, the electrolytic parts cleaner of Hoffman would likely appear to be ineffective at removing traditional casting materials, as it only removes accumulated and lightly-adhered films.

In contrast, in the claimed invention, electrolytic processing is capable of effectively removing a residual casting material. The casting material can be effectively removed from a cast part when a disintegration additive is included in a residual casting material. None of the cited references recites each and every limitation of independent

Claims 32 and 46, nor of their dependent claims. Further, none of the cited references provides any motivation to remove residual casting materials from cast parts via electrolytic processing, nonetheless to include a disintegration additive that consists essentially of an ionic compound in a casting material to facilitate such methods of removing casting material. Applicant respectfully requests reconsideration of the claims and prompt allowance thereof.

CONCLUSION

Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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